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PREFERENTIAL GRAZING CONTINUES UNDER REST-ROTATION MANAGEMENT

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ABSTRACT: Even with considerable attention given to the problem of livestock distribution, preferential grazing of the range still occurs under rest-rotation management. However, rest-rotation management provides needed rest for preferred areas and forces cattle to use some areas they might otherwise not graze.

All of us involved with the management of rangelands know that livestock tend to graze certain preferred areas each season. Only when livestock can no longer get their fill will they roam to less preferred areas. As Hormay and Talbot[1/] point out, preferential grazing of range sites takes place under moderate and light as well as heavy range stocking. Stoddart and Smith[2/] list salting, fencing, herding, trail building, developing water, and changing the kind of livestock as methods to obtain more even use of the range.

Measures Taken to Improve Distribution

Rest-rotation management is being tested on the Harvey Valley range allotment on the Lassen National Forest in northeastern California. There we are using a combination of fencing, salting, developing water, and riding to obtain more even distribution of grazing pressure. The allotment

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1/ Hormay, A. L., and Talbot, M. W. Rest-rotation grazing--a new management system for perennial bunchgrass ranges. U.S. Dept. Agr. Forest Serv. Prod. Res. Rpt. 51. pp. 15, 16, 40. 1961.

2/ Stoddart, L. A., and Smith, A. D. Range management. Ed. 2, p. 324. New York: McGraw-Hill Book Co., Inc. 1955.

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is divided into five fenced units of about equal grazing capacity. Each grazing season, one unit it stocked fully for the entire season, a second unit is stocked moderately for the first half of the season, and a third unit is stocked fully for the second half of the season. The other two units are rested season long. Natural and developed watering places are located in the bottom areas of the three units grazed in 1961. Salt is placed in the upland areas well away from water. A full-time range rider keeps the cattle spread out over the grazing units.

Utilization Checks

We estimated the use on the three units grazed in 1961 by the percentage-of-plants-ungrazed method. Only plants entirely available to grazing animals were included. Herbage use on this basis was determined for each major vegetation subtype in each grazed unit by referring to the utilization chart in the range field guide of the Forest Service's California Region. Only principal forage species were considered in surveys (table 1). Our results show that even with the attention given to the distribution problem, we still have preferential grazing of the range.

Use According to Units

From table 2 we can see which vegetation subtypes in each unit were used most heavily. In unit 1, which was grazed season long in 1961, the reseeded and wet meadow areas got the heaviest use, and the sagebrush-bitterbrush subtype the least. The sagebrush subtype, while producing nearly as many animal-unit-months (AUM) of grazing as the wet meadows and reseeded areas combined, had only 38 percent of the available herbage eaten by the end of the season.

The timbered areas in unit 3 produce nearly a third of the AUM grazing in the unit, but herbage use in this subtype was only 15 percent. On the reseeded areas, which produce less than 14 percent of the AUM, 65 percent of the herbage was used. Of interest is the 44 percent use in the wet meadows of unit 3. Apparently livestock found the vegetation on the reseeded and sprayed areas equally or more attractive. Unit 3 was grazed at a moderate rate during the first half of the season, and perhaps cattle could afford to be more selective in their grazing than in units 1 and 5. Seasonal preference also may be a factor. Had grazing continued all season in unit 3, the wet meadow areas probably would have been used to about the same degree as in the other two units.

In unit 5--grazed fully the second half of the season--the wet meadows got the heaviest use, and the sagebrush and timber (no sagebrush) subtypes the least. This unit has no reseeded and but little sprayed area.

Two very different timber subtypes are found in unit 5. This difference was reflected in use on these areas. Timber-with-sagebrush has an overstory of ponderosa pine (Pinus ponderosa) and an understory of big sagebrush (Artemisia tridentata). Timber-with-no-sagebrush has a

Table 1.--Species considered in herbage use survey, Harvey Valley range allotment, Lassen National Forest, 1961[1/]

Species	Sage-brush	Sage-brush-bitter-brush	Timber (with sage-brush)	Timber (no sage-brush)	Dry meadows and grass-land	Grass-land and sprayed areas	Wet meadows	Re-seeded areas
Agropyron cristatum	--	--	--	--	--	--	--	x
Agropyron elongatum	--	--	--	--	--	--	--	x
Agropyron intermedium	--	--	--	--	--	--	--	x
Agrostis species	--	--	--	--	x	--	x	--
Bromus inermis	x	--	--	--	--	--	--	x
Carex exserta	x	x	x	--	x	--	x	x
Carex nebraskensis	--	--	--	--	--	--	x	--
Carex rossii	x	x	x	x	x	--	--	x
Festuca idahoensis	x	x	x	x	x	x	--	x
Juncus balticus	x	--	--	--	x	--	x	x
Other grass-likes	x	x	x	x	x	--	x	x
Other grasses	x	--	x	x	x	x	x	x
Poa nevadensis	x	--	--	--	x	x	x	x
Poa sandbergii	x	--	x	--	x	x	--	x
Purshia tridentata	x	x	x	x	--	--	--	--
Sitanion hystrix	x	x	x	x	x	x	x	x
Stipa species	x	x	x	x	x	x	--	x
Wyethia mollis	--	--	x	--	--	--	--	--

1/ An x indicates at least one observation of the species in the vegetation subtype.

Table 2.--Herbage use on the principal vegetation subtypes of three units grazed in 1961, Harvey Valley range allotment, Lassen National Forest

Vegetation subtype	Unit 1		Unit 3		Unit 5	
	Animal-unit months	Herbage use	Animal-unit months	Herbage use	Animal-unit months	Herbage use
			Percent			
Sagebrush	36.3	38	30.8	27	9.9	24
Sagebrush-bitterbrush	4.7	18	--	--	--	--
Timber (with sagebrush)	9.7	34	31.7	15	10.0	45
Timber (no sagebrush)	--	--	--	--	36.6	28
Dry meadows and grassland	9.4	28	--	--	16.7	55
Grassland and sprayed areas	--	--	3.3	57	--	--
Wet meadows	20.4	60	20.3	44	26.8	67
Reseeded areas	19.5	67	13.9	65	--	--

mixed pine-fir overstory with a scattered shrub understory mostly of greenleaf manzanita (Arctostaphylos patula). Differential use in these two subtypes is partly accounted for by differences in abundance and kind of forage species (table 3). The much greater abundance of Idaho fescue (Festuca idahoensis), a highly palatable species, under the pine overstory than under the pine-fir overstory probably makes this subtype preferred over the other. The Idaho fescue plants also are generally large, vigorous, and produce considerable herbage. Under the pine-fir overstory, needlegrass (Stipa) plants are common, but the plants are small and produce little herbage. As a result, probably both quantity and quality of available herbage per unit area is reflected in the relative use in these timber subtypes. Even man prefers to eat where he gets the most for his money.

Table 3.--Species composition of principal forage plants in two timber subtypes of unit 5, Harvey Valley range allotment, Lassen National Forest, 1961[1/]

Species	Timber (with sagebrush)	Timber (no sagebrush)
	Percent	
Festuca idahoensis	38.4	2.1
Sitanion hystrix	11.3	13.6
Stipa species	10.6	44.8
Other grasses	--	0.7
Carex rossii	22.8	35.5
Carex exserta	16.0	--
Other grass-likes	0.9	0.9
Purshia tridentata	--	2.4

1/ Based on frequency of occurrence at sampling locations.

Why Rest-Rotation Management?

The picture of range use given by these three units shows that considerable attention to fencing, salting, and other measures for cattle distribution helps but does not solve the problem of preferential grazing and probable overgrazing of certain areas. Rest-rotation management was designed to provide periodic rest and full grazing for each range unit,

and not to eliminate preferential grazing. Hormay and Talbot, whose work led to the development of this system, concluded that preferential grazing cannot be avoided.

As practiced at Harvey Valley, rest-rotation management provides two complete seasons and two half seasons rest from grazing for each of the five grazing units over a 5-year period. Thus, while certain areas in each unit are preferred over others by cattle and are heavily grazed, the rest permits plants in all areas to regain vigor and produce seed. Rest also gives seedlings a chance to become established. Just as a man needs a vacation from his work to keep from becoming nonproductive, a range also needs its vacation.

By concentrating grazing in three units each year we not only provide complete rest for the other units, but also force cattle to use forage in areas they might otherwise avoid. In unit 3, for example, the timber subtypes were very lightly used. Had the entire allotment been open to grazing, it is doubtful that we would have gotten even this small amount of use in the timber. During the 1962 grazing season, unit 3 is to be grazed season long, and use of timber forage should be similar to what it was in units 1 and 5 in 1961.